



A Corporate Publication of Santee Cooper

# POWERSOURCE

SUMMER 2010





## From the CEO

**W**hile the dust settles on a painful economic era in South Carolina, glimmers of good news stand out. One is that Santee Cooper's

customer base actually grew a little last year. The economy remains difficult for many of our customers, and yet signs continue to indicate our state is making progress.

Santee Cooper continues to do all we can to provide low-cost, reliable and environmentally protective electricity and water, with excellent service, to all of our customers. It is our primary responsibility, and we know that affordable and reliable electricity in particular is an economic driver. The cost of power is one of the top expenses for major industrial and commercial employers. Our low rates help attract and retain these businesses.

With that said, Santee Cooper continues to operate in a period of unprecedented change and challenge in the electric industry. One significant area of concern relates to regulation. The Environmental Protection Agency is increasingly interested in new regulations that will most likely increase the cost of power, from proposed regulations on greenhouse gas emissions to strict ozone attainment standards and, yes, carbon regulation.

Up for consideration: greenhouse gas emission limits so low that they would likely affect the operation of small businesses and apartment complexes; new and revised ambient air standards strict enough to gridlock permitting and potentially limit economic development in the state; and new ozone attainment standards strict enough to force the state into a non-attainment status, which could bring industrial development to a screeching halt.

Carbon regulation could achieve the same results as potential legislation has sought: taxing carbon emissions, which are associated with many industrial processes including electricity generation from fossil fuel sources. The Southeast is heavily dependent on fossil fuel-fired generation, and so any carbon costs – whether levied by legislation or regulation – could significantly increase the cost of power to our customers.

We are monitoring regulatory arenas and representing our customers' interests in these discussions. And now more than ever, Santee Cooper remains focused on a balance between providing low-cost and reliable power, continuing our environmental stewardship and protecting our financial stability. This balance enables us to best serve our customers and continue our role as a leading resource for all of South Carolina.

**Lonnie N. Carter**  
President and Chief Executive Officer



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# Santee Cooper and Landfill Gas Generation

*A Journey Toward Sustainability*

by Jill Watts    photos by Jim Huff





Sustainability means different things to different people, and at Santee Cooper one definition of sustainability is careful stewardship of our natural resources. Santee Cooper's history of environmental stewardship is rich, in fact, with examples dating to its start 76 years ago as a hydroelectric power generator.

Hydroelectric power remains an important emissions-free source of Santee Cooper's generation today. Sources of new hydroelectric power are scarce, however, and when Santee Cooper launched its renewable Green Power generating program nearly a decade ago, utility officials turned to the land instead – the landfill, that is.

Landfills naturally create methane gas as garbage decomposes, and that methane gas can fuel electricity generation much as natural gas does. When Santee Cooper opened its first landfill generating station in 2001, it became the first utility in South Carolina to produce and sell Green Power, and Santee Cooper remains the state's industry leader today.

Though the production of electricity has not largely changed since the days of Edison in the late 1880s, using methane is a newer way to fuel that production. As Santee Cooper considered whether to lead South Carolina's power producers into renewable generation, the utility turned to its customers for guidance. Research supported the move, showing that Santee Cooper customers favored green generation as an opportunity to demonstrate their own environmental stewardship.

"It has been obvious our customers meant what they said," said Marc Tye, Santee Cooper vice president of conservation and renewable energy. "It costs more to produce Green Power than electricity produced from conventional sources, and our customers continue to support our work to grow this program."

In 2001, the year Santee Cooper introduced Green Power to South Carolina, 328 customers voluntarily signed up to pay extra each month for the premium costs associated with renewable generation. By 2009, the number of customers purchasing blocks of Green Power increased to 6,255, including more than 3,800 customers of the state's electric cooperatives. Santee Cooper reinvests 100 percent of the money customers spend on Green Power into new or expanded renewable generation, including additional landfill stations and solar generation to date.

Landfill gas is a fairly cost-effective source of renewable fuel, and it offers more reliability than solar or wind power. That made it a good entry point for Santee Cooper and a good value for customers.



Santee Cooper made its Green Power generating debut at the Horry County Landfill in 2001.

Because methane is a greenhouse gas that is 20 times more harmful than carbon dioxide, capturing it as a fuel source for generation is also good news for the environment.

According to the U.S. Environmental Protection Agency, every 1 megawatt of power produced through a landfill gas generating station has the environmental benefit of removing almost 8,000 cars from area roads or planting over 10,000 acres of trees.

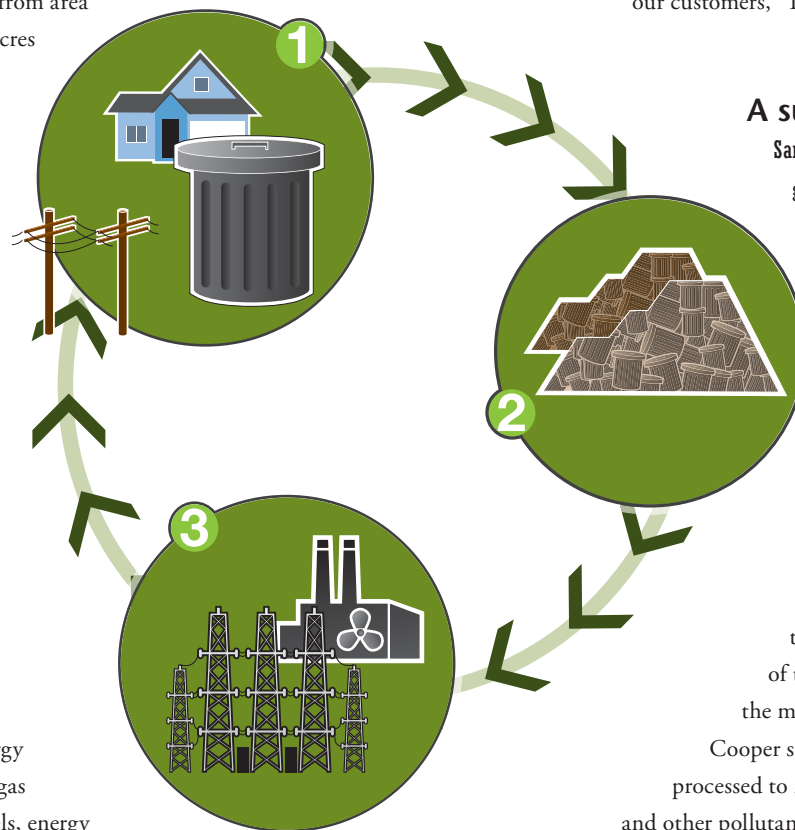
Tapping into the potential of landfill gas provided the foundation for change that Santee Cooper customers wanted.

A major new impetus came in 2007, when Santee Cooper's board of directors set an aggressive goal that reinforced the utility's leadership in environmental stewardship: to generate 40 percent of Santee Cooper's energy by 2020 from non-greenhouse gas emitting resources, biomass fuels, energy efficiency and conservation.

By then, Santee Cooper already had six years invested in its landmark landfill gas generating program. As time has marched on, Santee Cooper has expanded its renewable portfolio and increased its review of potential new projects. That early experience generating electricity

from landfill gas has proven invaluable as an option for customers and a foundation to build upon.

"The scope of our efforts in renewable generation continues to broaden, with demonstration solar projects, wind research and biomass exploration. Each of these initiatives, and new ones to come, move us toward solutions that are best for our customers," Tye said.



## A sustainable path

**Santee Cooper's first landfill** generating site was developed in Horry County in conjunction with the Horry County Solid Waste Authority and Horry Electric Cooperative. The process starts when methane gas is recovered from the landfill via a series of wells. A blower skid then draws a vacuum off of the well field and moves the methane gas into the Santee Cooper station, where it is first processed to remove excess moisture and other pollutants. It is then piped into engine buildings and acts much like natural gas in turning the engines and generating electricity.

Horry Electric Cooperative takes the electricity to homes over its distribution network, which covers the area of the Horry County Landfill. The Horry County Landfill Generating Station opened in





**The Anderson Regional Landfill station generates 3 megawatts of renewable Green Power using two Caterpillar engines, including the one pictured here.**

2001 with two V-20 engines; a third was added later, and the station today can produce 3 MWs.

Santee Cooper's second landfill station opened at the Lee County Landfill in 2005, followed by stations at the Richland County Landfill in 2006, the Anderson Regional Landfill in 2008 and the Georgetown County Landfill earlier this year. The largest station is Lee, where engines and a turbine produce a total 10 MWs. Today, Santee Cooper produces 22 MWs through landfill gas generation, and that total will reach 28 MWs by year's end if current projects stay on schedule: Construction is underway at a 3-MW station at the Berkeley County Landfill, and engineers are planning a 3-MW expansion at the Richland facility later this year.

Santee Cooper hopes to ultimately generate 45 MWs of electricity through its landfill generating program, according to Tom Kierspe, Santee Cooper's vice president of engineering and construction

services. "That would be enough to power more than 20,000 average-sized homes, so the impact is beginning to add up," he said.

"We look at expansion of the site as soon as it's built. We want to maximize the power we can get and the investment made. If the landfill is growing, we look at adding more wells to collect that methane, as we have done already at Lee County," Kierspe added.

A group of county and utility representatives gathered to dedicate Santee Cooper's newest station, in Georgetown County, on Earth Day. The Georgetown County Landfill Generating Station generates electricity through a 1-MW GE Jenbacher V-20 engine and gets it to customers' homes through the Santee Electric Cooperative distribution system. The project was partially supported by Green Power sales, and as the landfill grows, so will Santee Cooper's renewable generation there.



Sel Hemingway, Georgetown County Administrator said, “This project is yet another example of how organizations can work together to produce benefits for our citizens. This process transforms a detriment to our environment and a cost to county operations into a clean source of electricity for our citizens. We applaud the efforts of our staff and Santee Cooper to make this a reality, and we encourage the development of other partnerships in the future.”

Lonnie Carter, Santee Cooper president and CEO, called the Georgetown project “a great Earth-friendly story, for three reasons: One, landfill gas is a cost-effective source of renewable energy. Two, this generating station solves an environmental problem, by removing methane gas from the environment. Three, by converting the methane gas into electricity, we are making sure that a reliable source of energy doesn’t go to waste.”

Santee Cooper evaluates all renewable generation proposals in the context of what best serves the utility’s customers. “Those decisions strike a balance between cost, environmental impact and reliability of power,” Carter said. “Landfill generation scores in all three areas, and so our customers win.”

A decade from now, it is possible that Santee Cooper’s renewable Green Power portfolio will be more diverse than it is today, with additional solar generation, biomass and perhaps even offshore wind energy, which the utility is researching today. One thing is certain, however, Santee Cooper’s experience developing landfill gas generation will continue to benefit all of South Carolina with affordable, reliable and environmentally sustainable electricity. **PS**

**Mechanic B Anthony Strickland works on an engine at the Lee County Landfill Generating Station.**









# *The Tailrace Canal*

*where recreation, angling  
and history coalesce...by boat*

by Willard Strong

photos by Jim Huff





*It's a 4.5-mile long body of water, made by man with a machine named Monighan, bookended by Lake Moultrie and the Cooper River.*

*During the summer boating season, its 250-foot wide channel is a weekend hot spot, playing host to fast-moving bass rigs, leisurely pontoons and personal watercraft spouting spectacular rooster tails.*

*There are spectacular fish tales too, such as this: In 1991, a Summerville angler landed a world record Arkansas blue catfish here. At 109 pounds, 4 ounces, it stood as the record for five years.*

**This is the Tailrace Canal**, a centerpiece of the Santee Cooper Hydroelectric and Navigation Project and a gateway for navigating by boat between the Santee Cooper Lakes and Charleston Harbor, 48 miles downstream. Two launch ramps make access easy. Camping, whether by tent or in a recreational vehicle with hookups, is another amenity found here. For a relaxing meal, there is waterfront dining on an historic spot that 220 years ago hosted a bloody and demoralizing defeat for Americans seeking independence.

But just what is a “tailrace,” anyway? According to Merriam-Webster’s Third New International Dictionary, a tailrace is “a race for conveying water away from a point of industrial application (as a waterwheel or turbine) after use.” The Tailrace Canal is simply the discharge area where rapidly racing water leaves the Jefferies Hydroelectric Station on Lake Moultrie and rushes toward Charleston Harbor to meet its final destination at the Atlantic Ocean.



## Colonial commerce, defeat

In Colonial times, the farthest boats could venture up the west branch of the Cooper River was Stony Landing, where the floating dock of the Old Santee Canal is now located.

Stony Landing was originally referred to as “Stone Landing” on some early maps, so named for the high grade of marl (or “Cooper marl”) found near

**After about 30 minutes, 6 million gallons of water from Lake Moultrie held by the Pinopolis Lock is discharged into the Tailrace Canal.**



the surface of the soil. In the late 1700s, it became known as Stony Landing.

This landing is on Biggin Creek, a swampy stream that fed into the river. According to a 2001 publication of the Berkeley County Historical Society, Stony Landing “was extremely important to the commerce of the early Carolina colony. Supplies for the growing interior of South Carolina were brought up the Cooper River by boat, unloaded at Stony Landing, and often carried by Indian carriers or pack horsemen and later by wagons up the Cherokee Path.” The path passed through present-day Pinopolis and Columbia, and eventually westward as far as Mississippi.

Rice planters in upper Berkeley County hauled their rice to Stony Landing to be loaded on flatboats or schooners and transported to Charles Town. Advertisements from 1731 in a Charleston newspaper reference a general store at the landing, selling dry goods and liquor. This business was in operation for approximately two decades.

The area was served, too, by a French-born physician who is referenced as either Dr. Lewis Mottet or Dr. Lewis Motte. He lived at Stony Landing during the Colonial era and attended to the sick

of St. John’s Berkeley, St. James Santee and St. James Goose Creek parishes.

A bridge nearby across Biggin Creek, where a seafood restaurant stands today, was an important thoroughfare in Colonial times and the site of an American defeat at the hands of Lt. Col. Banastre Tarleton in the American Revolution. Tarleton was reintroduced to modern audiences as the nasty character, Tavington, in the 2000 movie, “The Patriot,” starring Mel Gibson.

According to Henry Lumpkin’s book, “From Savannah to Yorktown, the American Revolution in the South,” Tarleton and Maj. Patrick Ferguson “surprised and routed Gen. Isaac Huger and Lt. Col. William Washington’s American cavalry guarding Biggin Bridge over the Cooper River near Moncks Corner. The bridge was then carried by the British and provincial troops with the bayonet, and American militia stationed on the other bank (near Biggin Church) were beaten and scattered.”

Carl Borick, writing in “A Gallant Defense, the Siege of Charleston 1780,” was considerably more descriptive of what happened during this surprise night attack. “Sabers thudded sickly



**Kayakers ply the Tailrace Canal at the Old Santee Canal Park where a boardwalk overlooks the mouth of Biggin Creek and the 1840's-era Stony Landing House sits atop a bluff. This spot is where the west branch of the Cooper River begins a 40-mile journey to Charleston Harbor.**

into heads and shoulders,” Borick wrote, “while men shrieked in agony and fear. The cries of whinnying horses and wounded men resounded in the early morning darkness.”

Fifteen patriots died and 18 were wounded. The Redcoats captured 63 officers and enlisted men, in addition to 40 wagons and assorted equipment. The next month, Charles Towne surrendered to the British.

The activity fed by river boat traffic through the area slowed around 1800 with the construction of the Santee Canal and development of new roads. The Santee Canal joined the Santee and Cooper rivers and so ended at the mouth of Biggin Creek, a stone’s throw from Stony Landing.

Constructed between 1793 and 1800, the 22-mile long, 30-foot wide waterway, with its 10 locks, was the first canal in the U.S. to connect two bodies of water. During its 50-year lifespan, the Santee Canal greatly enhanced commerce between the Upcountry and Lowcountry. The Santee Canal, a private venture of leading citizens, is considered a precursor to the Santee Cooper project.

Prior to the Civil War, the land around Stony Landing was owned by Dr. St. Julien Ravenel, a Charleston physician. Ravenel was noted for his scientific endeavors and gave up medicine to devote his time to chemical and plant research. He experimented with the use of marl found on the property to produce lime.

By 1860, a lime and cement business, the Colleton Lime Works, was in operation, owned by Ravenel and C.H. Stevens. Lime sold for 90 cents a barrel.

## Building the Tailrace Canal

According to “Picture Progress Story Santee Cooper,” the 1945 book compiled and edited by John A. Ziegler, 4.5 miles comprising the Tailrace were “cut from the powerhouse and lock to (the) west branch of the Cooper River.”

Two contractors and two subcontractors did the work, overseen by the Public Works Administration, the federal agency (later named the Federal Works Agency) that financed the Santee Cooper project. As the book states, most of the labor came from the Works Progress Administration.

**The 2008-2009 drought exposed this remnant of one of the original Santee Canal’s 10 locks that connected the Santee and Cooper rivers. The waterway, America’s first summit canal, was in operation from 1800 until 1850.**







**The Jefferies Hydroelectric Station discharges water from Lake Moultrie into the Tailrace Canal.**

Work commenced on Jan. 17, 1941. According to “History of Santee Cooper 1934-1984” by Dr. Walter Edgar, “A ‘Monighan’ or ditch digger was brought to the site to dig the canal. The machine was self-propelled and could ‘walk’ at the rate of about 12.5-feet per second. Its giant scoop could take a 14-cubic yard bite of earth at a time.”

Constructing the Tailrace also entailed the “Cooper River improvement,” or 6.5-miles of “widening, straightening and deepening of the Cooper River,” Ziegler wrote, where the

Tailrace ends downstream, “to allow an outlet to the sea for the spent waters of the diverted Santee River.”

All this work, it was envisioned, would be to accommodate commercial barge traffic between Charleston and Columbia. The Pinopolis Lock, imbedded into the hydrostation, was completed on June 17, 1940, after its nearly seven-month construction period. The lock first operated on Jan. 13, 1942, when a tugboat and two barges headed upstream were lifted from the Tailrace to Lake Moultrie.



**The graduated scale at the Pinopolis Lock lets boaters know they'll be lifted or lowered approximately 75 feet.**



**This ladder is imbedded in the Pinopolis Lock.**





**A typical summer weekend on the Tailrace Canal, looking north toward the CSX Transportation railroad bridge as it spans the waterway.**

The demand for barge traffic never materialized however, and use of the Tailrace Canal is overwhelmingly recreational today.

## A Journey down the Tailrace Canal

On weekends during the summer boating season, watercraft routinely gather on Lake Moultrie at the lock, awaiting the moment when the massive gates open and invite them in.

Carefully they enter, as it can get a bit crowded. V-hull ski boats, center console craft and pontoons tie up in unison, their origins perhaps a few miles away or from upper Lake Marion. Some are “day trippers,” anticipating a casual lunch or early dinner, or a trip through history. Others are loaded for skiing or fishing.

Music sounds from different boat stereos, spirits are high and acquaintances are often made. The gates close and water, all 6 million gallons, is slowly flushed into the Tailrace. A graduated scale marks this draining of water from the largest “bathtub” you may ever see. After about 25 minutes, the gates slowly open on the Tailrace side and boats enter a 600-foot wide turning basin area, large enough for barges. To the left is the Jefferies Generating Station.

Watercraft proceed slowly at first, as typically more vessels are waiting their turn to enter the lock for a 75-foot lift back to Lake Moultrie. In a multi-mode transportation intersection of sorts, the Tailrace Canal carries boats under a railway bridge and a U.S. Highway 52 bridge carrying cars and trucks over the waterway. The railway bridge is part of an important corridor for CSX Transportation and Amtrak, a rail route between New York City and Miami.

After passing under both bridges, boats pass the William Dennis Boat Landing on the left, featuring a large parking lot and a launching area far enough off the canal that swiftly flowing water isn’t a problem when Santee Cooper is operating the turbines at the hydroplant.

On the right is a Moncks Corner landmark. Originally opening as The Dock restaurant in the late 1950s, it is now Gilligan’s at the Dock, part of a Lowcountry chain of restaurants specializing in seafood. Docking and launch facilities are ample, and camping facilities with hook-ups make it a popular place.

Going farther downstream, to the right is the property of the Old Santee Canal Park, operated by



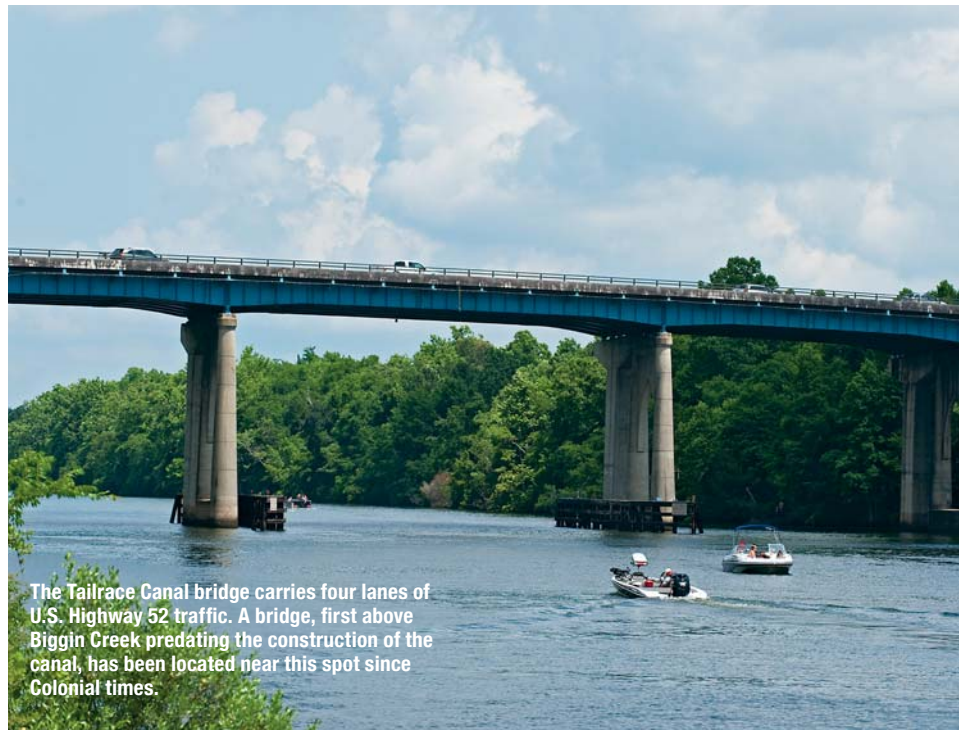
Santee Cooper. A floating dock stands ready to hold boats steady while the passengers disembark and explore.

The park's Interpretive Center tells the history of the old canal and the building of the lakes. One may explore the Stony Landing House, circa 1845, built by Charleston merchant John Dawson. It was the boyhood home of the late state Sen. Rembert Dennis, a fixture in Berkeley County politics for more than four decades. Located on park grounds, the Berkeley County Museum and Heritage Center is a five-minute walk away and interprets area history from Cooper River shark's teeth to NASCAR driver Tiny Lund's Daytona 500 victory.

As sunset approaches, boats line up for the return trip before the lock ceases operation for the day. The festive atmosphere continues.

The Tailrace Canal is a relatively short stretch of water, but its popularity for recreational boaters of all interests has endured for nearly seven decades and will surely continue for a long time to come. **PS**

**The floating dock at the Old Santee Canal Park's Stony Landing provides ample tie-up space. Opposite the dock is the mouth of Wadboo Creek, which flows into the canal and the west branch of the Cooper, which begins at this location.**











# GOING FOR

by Willard Strong  
photos by Jim Huff

# Going for Zero

## *Recycling at Santee Cooper*

## Is it just a pipedream or can “zero waste” realistically be achieved?

For firms involved in large-scale manufacturing such as Santee Cooper, the state's largest power producer, the answer may be more than just wishful thinking.



Auto manufacturer Subaru, for example, has a bona fide claim of operating a “zero waste” manufacturing facility in Indiana. John DiPietro, automotive editor of Edmund’s magazine, recently noted the plant “was the first ‘zero landfill’ auto factory in the U.S. Fully 99 percent of waste from the plant is recycled, and the remaining 1 percent is turned into electricity. If you can reuse something, then landfill waste will be reduced, and less will need to be manufactured in the first place.”

Santee Cooper has been following that philosophy for years now and achieved statewide recognition for recycling efforts in 2009, when the utility was named Recycler of the Year by the S.C. Department of Commerce. The recognition is a testament to Santee Cooper's ongoing commitment that is paying environmental dividends corporate-wide.

During fiscal 2009, Santee Cooper recycled over 1.9 billion pounds of paper, cardboard, plastic, aluminum cans, used electric poles, metal, batteries, gypsum and fly ash. In actuality, the accomplishment is just another milestone on the state-owned electric and water utility's journey begun two decades ago, to consciously seek out greener opportunities for its business operations.

To commemorate the 20<sup>th</sup> anniversary of Earth Day in 1990, the Santee Cooper Board of Directors passed a resolution that stated, “Protection and improvement of our environment are equal in importance to providing affordable electric energy.” These bold words set the stage for the corporate mindset being applied in earnest today.

**Investment Recovery Agent Aurelia Smith shows the different types of material that can be recycled.**



Santee Cooper's investment recovery department leads the way in working towards zero waste, through education, awareness and even trash-can surveys. These surveys, called waste stream analyses, involve sorting waste into the categories of metal/plastics, paper, cardboard and trash. Each area's recycling efforts are evaluated based on those analyses.

"As Santee Cooper continues to move towards being a 'zero-waste' company, our 2010 goal is to have less than 15 percent of the waste stream consist of recyclables," says Aurelia Smith, a Santee Cooper investment recovery agent. She says as the recycling industry continues to change, Santee Cooper will change along with it. As a result of these changes:

- Almost all office paper can now be recycled
- In addition to aluminum cans, all metal cans are now acceptable
- In many South Carolina counties, all No. 1 through No. 5 plastics are now recyclable
- Paperboard (such as cereal boxes), cardboard, magazines, newspapers and catalogs are all recyclable.

### So how is Santee Cooper doing?

A snapshot: so far this year, Santee Cooper has recycled 185,246 pounds of paper, magazines, newspaper and cardboard, over 4,028 pounds of aluminum cans and 7,147 pounds of plastic. Recycling one ton of paper

***"Protection and improvement of our environment are equal in importance to providing affordable electric energy."***

**Left: Paper is an important recyclable at Santee Cooper.**

**Below: Environmental Interns Erin Weeks and Julia Gragtmans sort through materials as part of the recycling process.**



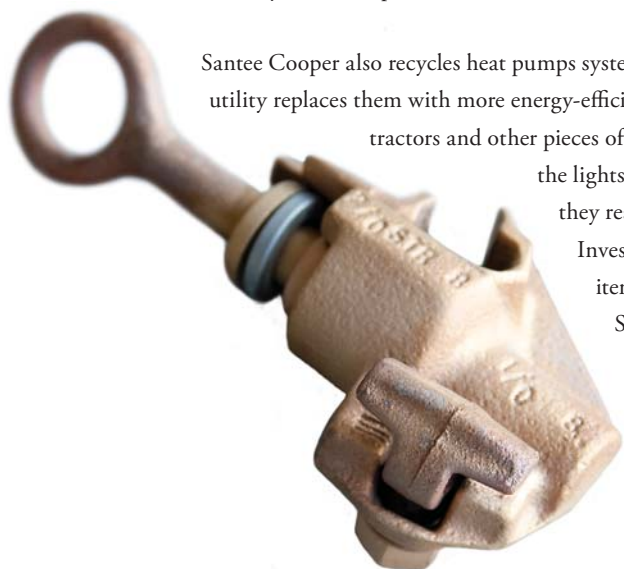


conserves 4,200 kilowatt-hours, enough to power one home for six months. Additionally, it takes 90 percent less electricity to make aluminum cans from recycled aluminum, as opposed to starting from natural resources. The volume of aluminum cans recycled at Santee Cooper this year have saved enough energy to make 1.6 million cans and avoid more than 20 tons of carbon dioxide.

“Last year, investment recovery expanded Santee Cooper’s corporate recycling program to include every staffed facility,” Smith says. “I think we made significant progress in that the amount of materials that could have been recycled fell from 38.43 percent at the beginning of 2009 to 19.74 percent by year’s end.”

George Rheubottom is an investment recovery agent who plays a big role in recycling along with Chris Faircloth, who works at Santee Cooper’s recycle center in Myrtle Beach. Among other things, he’s involved in reclaiming pole-top hardware and recyclable components that are found in such things as street lighting.

Santee Cooper also recycles heat pumps system-wide as they wear out, and the utility replaces them with more energy-efficient models. Utility line trucks, tractors and other pieces of heavy equipment needed to keep the lights on are bid out to the public when they reach the end of their utility lifespan. Investment Recovery tries to reuse other items internally whenever possible. If not, Santee Cooper also bids out those items.



#### Santee Cooper’s recycled plastic could resurface as:

- Garbage cans and garbage bags
- Planters
- Inkjet and toner supplies
- Cleaning equipment, such as plastic dustpans
- Patio furniture which will last longer than traditional wood, requires no maintenance and cannot be attacked by insects and rot
- Speed bumps
- Railroad bridges

**Left:** Recycle Specialist Chris Faircloth and Dremad Cooper handle wire bound for recycling.

**Right:** Investment Recovery Agent George Rhuebottom uses a digital camera to document equipment that is put on public bid.



“The items we can refurbish, we return to stock, saving money,” Rheubottom says. “Last year, we saved about \$80,000 from pole-top hardware and street lighting alone.”

### Guess what this bridge used to be?

Smith recites a list of buzz words: “Eco-friendly products, green products, recycled products, organic products, bio-degradable, sustainable resources ... They are here to stay because more and more businesses are trying to find creative ways to reduce, reuse and recycle.”

The bottom line: the industry has come a long way from where it was when Santee Cooper initially pushed recycling – that effort was limited to white paper. As the industry has found more uses for recycling different materials, Santee Cooper has expanded its recycling program.

**Right: Decorative street lighting contains material that Santee Cooper can recover.**



Compressors from old air conditioners are on the way to investment recovery.





Take plastics, for example.

“The plastic industry has evolved so much that a lot of plastic items you purchase today could be made from recycled plastic,” says Smith.

Plastic soda bottles Santee Cooper recycles are used to make fleece clothing, T-shirts, carpeting and other textiles. One of the largest manufacturers of cloth made from plastic bottles is EcoSpun, a trademark of Wellman Inc., one of Santee Cooper’s industrial customers.

Wellman has the capacity to keep almost 3 billion plastic bottles out of the world’s landfills each year, saving over one-half million barrels of oil and eliminating 400,000 tons of air emissions each year.

These are just a few examples to show how technology is allowing recycling to change and help corporations like Santee Cooper commit to zero-waste goals that are certainly aggressive, and increasingly attainable.

**PS**

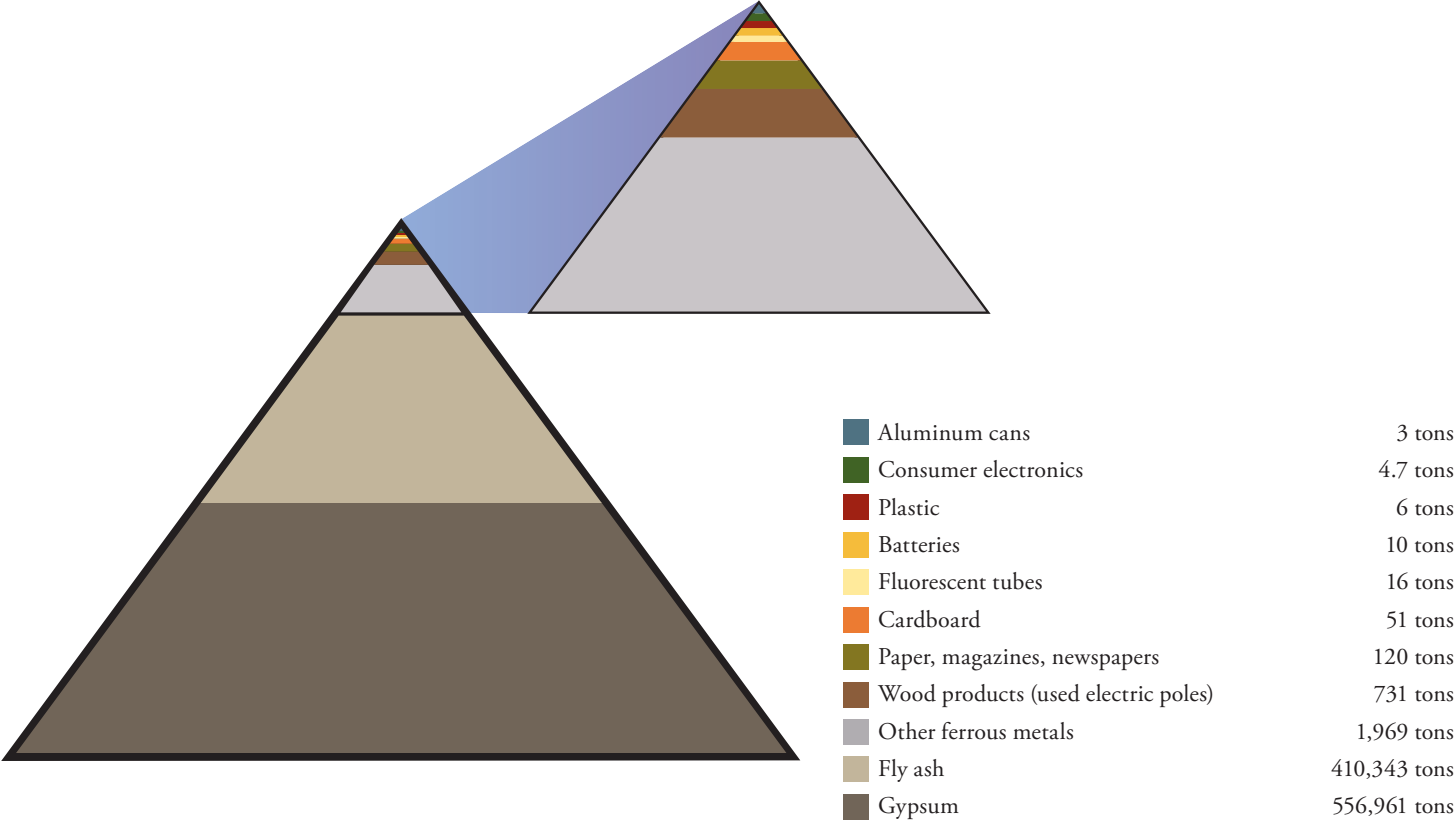


Recyclable material is a hodge podge of components, including guy wire, light bulbs, and assorted metals – even a discarded fan.




# Santee Cooper's 2009 recycling report card

Santee Cooper recycled more than 1.9 billion pounds of material in 2009, or 970,665 tons. The breakdown by weight:



# The Short Game on the Grand Strand

by Kevin Langston Photos by Jim Huff



Myrtle Beach's Spy Glass Adventure Golf is but one of the area's many miniature golf courses that earns the Grand Strand the reputation of the minigolf capital of the world.





ADVENTURE GOLF

ELLO POPPET  
QUICK  
HIDE THE RUM







**Bob Detwiler, founder and president of the US ProMiniGolf Association, lines up a putt at his Hawaiian Rumble Golf course in North Myrtle Beach.**

The young golfer squares his shoulders and leans over the ball. His putter still, he's been meticulous in his preparation for this most crucial shot. He's studied the green's contours, its slopes and its dips. He's accounted for the steady breeze that rushes in from the ocean. He is ready; all that's left to do is sink this putt. He rocks the putter back ever so slightly and deliberately, exhaling as he glides the putter toward its target.

Without warning, the silence is assaulted by cannon fire and a great splash of cool, blue water. The young golfer's hopes are dashed as his projectile is sent aimlessly down the green before resting against a bank of bricks. The gallery — rather, his fellow golfers — share a good-natured laugh before they have their turn at the hole. All the while, the hysterics of the miniature golf course carry on about them.

**Below:** At Treasure Island Golf, passages from Robert Louis Stevenson's famous book and course namesake perpetuate the pirate theme.

**Bottom left:** Terry Small of Pennsylvania takes the first stroke at one of Hawaiian Rumble's holes. Watching are Tim Price of Pennsylvania, Joe Rodolph of Vermont, Rachel Gottfried of California and Alex Wigmore of Vermont.





It's a scene that no doubt is played out countless times a day at the many miniature golf courses peppered along the Grand Strand, a 60-mile stretch of South Carolina beach that runs from Little River to Georgetown, powered by Santee Cooper. With more than 100 golf courses designed by the likes of Arnold Palmer, Jack Nicklaus, Greg Norman and Robert Trent Jones, it's no wonder the Myrtle Beach area is considered the seaside golf capital of the world.

But what about miniature golf?

"We think it's the minigolf capital of the world, the Grand Strand," says Bob Derwiler, who owns and operates the Hawaiian Rumble and Hawaiian Village miniature golf courses in North Myrtle Beach. He also founded the U.S. ProMiniGolf Association, which maintains its headquarters in his office at Hawaiian Rumble.

To wit, the Myrtle Beach Area Chamber of Commerce says the Grand Strand is home to more than 50 miniature golf courses with themes and obstacles as diverse as the 14 million tourists who vacation the area annually.

Known by names like crazy golf, midget golf, goofy golf, mini-putt, extreme golf, adventure golf, wacky golf and shorties, at its simplest miniature golf is exactly what its name implies: a miniature version of golf. It's accepted that the first miniature golf course was founded in 1867 at the Royal and Ancient Golf Club in St. Andrews, Scotland — the birthplace of golf. It was designed for women who had taken an interest in the sport but were forbidden at the time to publicly perform some of the movements a golf swing requires.

The first quintessential miniature golf course in the U.S. is reported to have been built in Pinehurst, North Carolina. By the early 20th century, miniature golf was rapidly catching on around the country. The frenzy sputtered during the Great Depression, however, and many of the country's earliest courses were closed and demolished.

**Top:** Located in Myrtle Beach, Treasure Island Golf was designed around existing landscaping like these palm trees, an unusual feature among most adventure-style minigolf courses.

**Bottom:** With her family watching, 9-year-old Lylli Harper of Columbus, Ohio, chases her ball down a sloped green at Treasure Island Golf.







In 1938 two brothers from Binghamton, N.Y., started building and operating their own miniature golf courses, but with a twist. Eschewing the simplicity of the century's first miniature golf courses, the Taylor brothers built in landscaping and obstacles like windmills and castles. Before long, they were designing courses throughout the U.S. and giving rise to the thematic miniature golf that has endured to this day.

Detwiler used to operate a more traditional, geometric miniature golf course in the lot behind Hawaiian Rumble. "It was more like what you find in Europe or on Putt-Putt

courses, but I couldn't get people to play it. The Hawaiian theme just seems to work, because everybody would like to go to Hawaii at some point in their life, and this may be their only chance," Detwiler says with a laugh.

Detwiler came from Chicago in 1975 to open a Baskin-Robbins shop at the now-closed Myrtle Square Mall, but miniature golf has been his business for the better part of 20 years. He boasts that Hawaiian Rumble has earned the reputation as the most famous miniature golf course in the world.

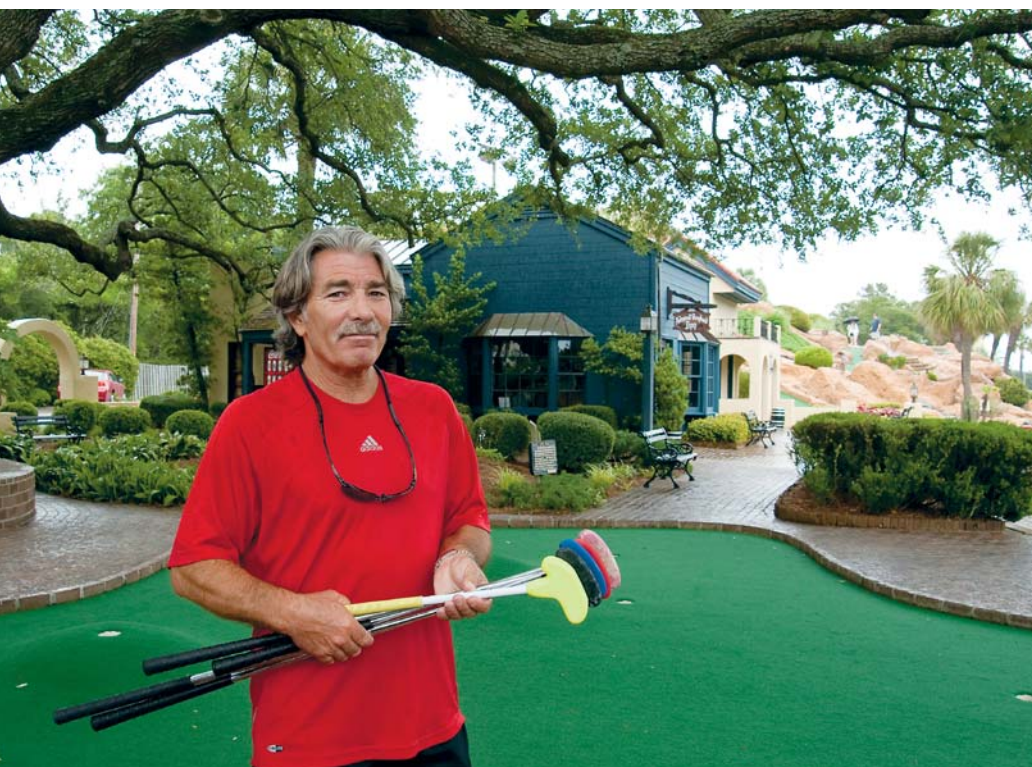
"It's been featured by the Golf Channel, the Travel Channel and in 'GOLF Magazine' and 'Golf Digest,'" Detwiler says. The course has also been written about in "The Wall Street Journal," "The New York Times," "Esquire," "Southern Living" and "Fortune," to name a few national periodicals. Dennis Hopper shot a scene there for his 1994

film "Chasers," and the 'Today' Show filed a story from there in 2002. More recently, Andy Richter filmed a sketch at Hawaiian Rumble for the short-lived "Tonight Show with Conan O'Brien."

"It was supposed to be broadcast during The Masters, but we all know how that worked out," Detwiler says, alluding to the controversy that resulted in O'Brien quitting "The Tonight Show" in January 2010 and Jay Leno returning as its host.

"What sets Hawaiian Rumble apart is

**Bob Cooke, general manager of Treasure Island Golf and Spy Glass Golf, has designed courses throughout the U.S., including his two courses and a handful of others along the Grand Strand.**





the theme and the 40-foot volcano that shoots fire and smoke every 20 minutes,” Detwiler says. “We fill the course up every March with hibiscus and other tropical plants, so it’s like walking through a garden.”

Not long after he opened Hawaiian Rumble, Detwiler formed the U.S. ProMiniGolf Association, seeking to set up miniature golf tournaments throughout the country.

“We call ourselves the PGA of minigolf,” he says. Detwiler also started the World Putters Association, which promotes adventure-style miniature golf courses across the globe, and he serves as representative for North and South America on the World Minigolf Sports Federation’s eight-member board of directors.

“Part of our goal is to educate people that there is a competitive side to minigolf,” Detwiler says. “Minigolf is not an easy sport. These courses have undulations and sand traps and water hazards, so you’re really learning how to play golf. I like to remind people that most professional golfers probably took their first golf shot on a minigolf course.”

Minigolf has its own competitive structure, with tournaments literally around the world. The Grand Strand plays host to two called, appropriately, The Masters and the U.S. Open.

When asked if anyone has ever scored a perfect 18 on Hawaiian Rumble, Detwiler smiles. “The lowest score ever achieved on Hawaiian Rumble is a 26, and that’s good,” he says. “Very good, 26.”

**This centuries-old oak tree provides a cool canopy for practicing putters and patient patrons at Treasure Island Golf.**







Thirty is the course record at both Treasure Island Golf and Spy Glass Golf, which are located 10 blocks apart on North Kings Highway in Myrtle Beach. Bob Cooke, general manager of both locations, says the record belongs to Pro Football Hall of Fame quarterback Jim Kelly, who led the Buffalo Bills to four consecutive Super Bowls from 1990-1993.

“He used to play in a charity tournament that we hosted, and he’s got the record at both courses,” Cooke says.

Cooke has been general manager of Treasure Island since it opened in 1981 and of Spy Glass since it opened in 1985. He oversaw the redesign of both courses, which he parlayed into a side venture as a designer of miniature golf courses. He’s designed a handful of other courses along the Grand Strand, as well as in Florida, Georgia, New Jersey, Massachusetts, Michigan and Ohio.

“I design minigolf courses all over the place, and there’s nowhere I know of in the world that has as many miniature golf courses as we do,” Cooke says.

He says miniature golf is so huge on the Grand Strand because it’s a leisure time activity that doesn’t discriminate against age.

“You go to a water park, and grandma can’t go on the same rides as the little guy. So she goes on the lazy river, but the kids don’t want anything to do with that,” Cooke says. “The beach wins in the daytime, and we do well at night because people are looking for a group activity. It doesn’t include alcohol. It’s more interactive and participatory than going to a movie. At the same time, it’s not a fad like laser tag. It seems to be a staple, and that’s because of its market appeal and the broad range of people that can play together.”

At Treasure Island, Cooke learned quickly that 80 percent of the business was being done at night. This led to the course’s first redesign, to help accommodate the nighttime crowds efficiently and entertainingly.

**Top: Tropical, pirate, jungle and nautical themes prevail along the Grand Strand, including the Jamaican-themed Runaway Bay Miniature Golf in Garden City Beach. The 36-hole course features 40-foot waterfalls, caves and this colorful seaplane.**



**Bottom: Evan Paynic of Raleigh, N.C., watches his ball zip through a cave at Hawaiian Rumble in North Myrtle Beach.**



“When you do all of your business at the same time, you’ve got to be able to handle that peak period,” Cooke says. “But you still want it to be fun, so there was a combination of things we had to do from a structural standpoint. You could make all the holes so easy that people would zing through here, but you don’t want that. There’s a balance.”

Although Treasure Island and Spy Glass both feature pirate themes, their footprints offer a good example of how course designs should differ to take advantage of resources that are available.

“Treasure Island has a bit more novelty to it and is more mature,” Cooke says. “There’s a lot more landscaping on the property that we worked around. From a landscape perspective, nothing at the beach beats Treasure Island. Down at Spy Glass, we had to create everything. We had to do something to give it more appeal, so I gave the course more elevation and then added special effects.”

Those special effects include a 60-foot waterfall, cannons, fire, fog, waterspouts and vocals.

“I do major motion picture special effects at Spy Glass. It’s kind of like ‘Pirates of the Caribbean’ at Disney,” Cooke says. “Spy Glass is also three or four strokes tougher than Treasure Island.”

For all of these reasons — the challenging layouts, the adventure themes, the family-friendly nature, and the special effects — miniature golf has become par for the course for vacationers of all ages, all along the Grand Strand, all year long. **PS**



**As temperatures cool in the evening hours, minigolf courses becomes a popular group activity for families and other tourists. At Spy Glass Adventure Golf, players wait their turn amid a menagerie of maritime mayhem like cannon blasts, waterfalls, fog and water spouts.**



# new<sup>2010</sup>Source

by Thomas Horton

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## GOFER celebrated

Santee Cooper celebrated the 20<sup>th</sup> birthday of the utility's GOFER program with events across South Carolina in April. The Give Oil for Energy Recovery (GOFER) program has collected 25 million gallons of used motor oil since it was unveiled to the public on Earth Day of 1990. The program now includes 600 collection sites, making it the largest used motor oil collection program in the state.

The GOFER program helps avoid improper disposal of oil, which is illegal and harmful to the environment. One gallon of used oil can pollute 1 million gallons of freshwater, contaminate soil, and threaten wildlife. The GOFER program collects this oil and converts it to power. Two gallons of used oil can power an average home for one day.

Santee Cooper celebrated GOFER's birthday with simultaneous events in Moncks Corner, Conway and Lexington. The celebrations drew participation from regional S.C. Department of Health and Environmental Control offices, Berkeley Electric Cooperative, Horry Electric Cooperative, Mid-Carolina Electric Cooperative, the counties of Berkeley, Horry, and Lexington, and the Grand Strand Water and Sewer Authority.

## Reliability and safety awards

On March 30, the American Public Power Association presented Santee Cooper with two prestigious awards for 2009, the Electric Utility Safety Award and the Reliable Public Power Provider (RP<sub>3</sub>) designation. The awards were presented during the APPA's annual Engineering and Operations Technical Conference in Omaha, Nebraska.

The RP<sub>3</sub> award places Santee Cooper among the top 5 percent of public power utilities in reliability. Santee Cooper's reliability on its distribution system was 99.9972 percent, while its transmission system's reliability was 99.9989 percent. The reliability rates mean Santee Cooper customers were without power an average of just five minutes for the entire year.

The Electric Utility Safety Award recognizes Santee Cooper for having the best safety record, measured in number of incidents in 2009, of all national utilities with 1 million to 4 million worker-hours of exposure. Santee Cooper stresses safe work habits among all workers, from office staff to line crews and generating station workers.

## Green events growing

A renewable approach to powering events, first used in South Carolina on the greens of Hilton Head Island's Harbour Town Golf Links, is rapidly spreading to many other locations across the state.

Beginning in 2009, the Verizon Heritage Golf Tournament purchased Santee Cooper's Green Power, becoming the first PGA Tour event to commit to run on 100 percent renewable energy and the first major event in South Carolina to run on Green Power. In 2010, this commitment has become much more widespread and other companies have followed Verizon's lead.

A second major sporting event in South Carolina colored itself green this year. On May 7-8, the Darlington Raceway

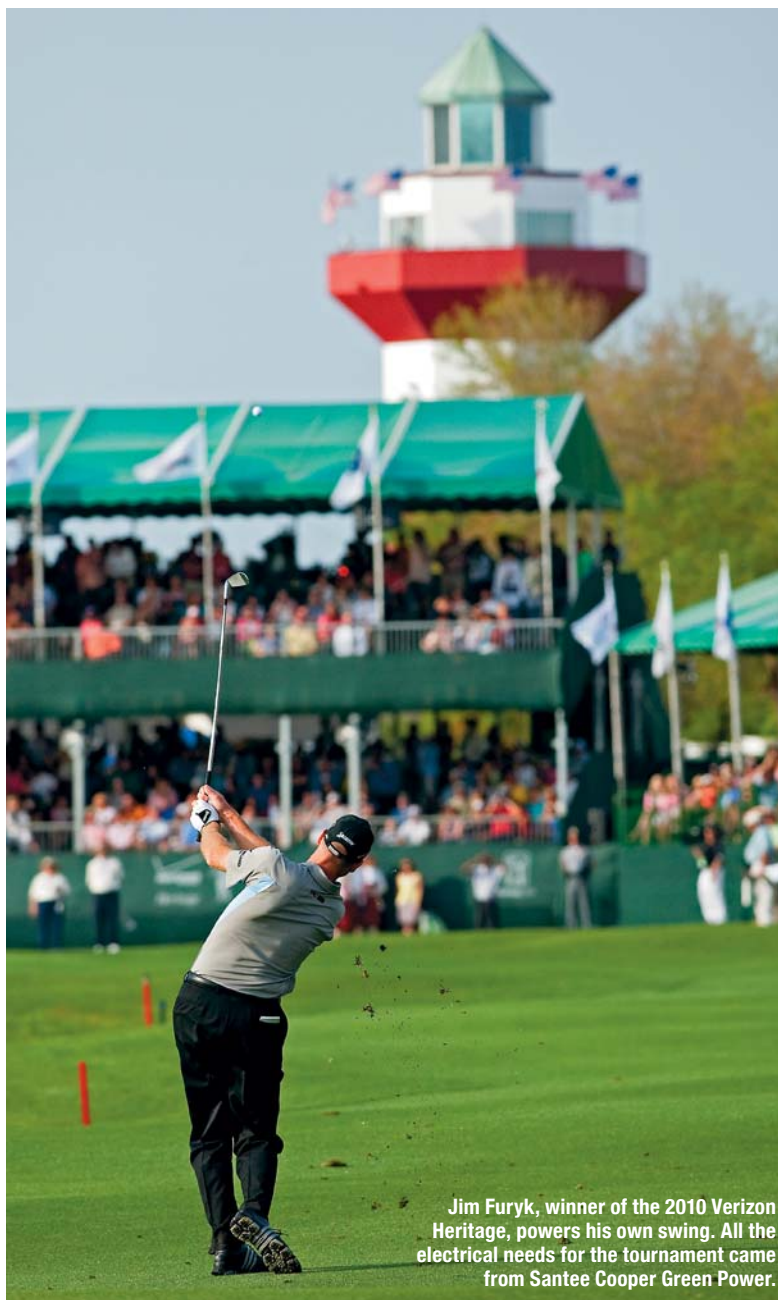


races. The Raceway purchased Santee Cooper's Green-e Energy Certified Green Power blocks through the Pee Dee Electric Cooperative to run these races on 100 percent Green Power.

South Carolina fairs and festivals are choosing renewable power too. In March, the Grand Strand Green Fair purchased 100 percent Green Power from Santee Cooper. In April, the Horry Georgetown Home Builders Association's Home Show 2010 purchased enough Green Power to supply its entire three-day event. In June, the 173<sup>rd</sup> Airborne Brigade Association celebrated a Salute to Veterans in North Myrtle Beach with a street festival powered entirely by Green Power. Myrtle Beach also went green that month for the Myrtle Beach Area Chamber of Commerce's 5<sup>th</sup> Annual Hurricane Preparedness Conference, at the Sheraton Convention Center.

Currently, Santee Cooper generates 22 megawatts of renewable Green Power from clean energy sources including landfill biogas and solar power. Santee Cooper is the only utility generating Green Power in South Carolina, and with the growing popularity of Green Power events, the renewable energy program will continue to expand.

"As always, revenues from all Green Power purchases will be fully reinvested in new or expanded Green Power generation by Santee Cooper. This is an investment that keeps on generating returns," said Marc Tye, Santee Cooper vice president of conservation and renewable energy. **PS**



Jim Furyk, winner of the 2010 Verizon Heritage, powers his own swing. All the electrical needs for the tournament came from Santee Cooper Green Power.



**Green to the core.**